Review Board for Government Contracts

REPORT

on

THE 1985 ANNUAL REVIEW

of

THE PROFIT FORMULA FOR
NON-COMPETITIVE GOVERNMENT CONTRACTS

March 1985

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The Rt. Hon. Peter Rees, Q.C., M.P.,
Chief Secretary,
H.M. Treasury,
Treasury Chambers,
Parliament Street,
London SW1P 3AG

11th March, 1985

Dear Chief Secretary,

I have pleasure in submitting the Review Board's Report on the 1985 Annual Review of the profit formula for non-competitive Government contracts.

I have sent a copy of the Report to the President of the C.B.I.

Yours sincerely,

JOHN GRENSIDE

Chairman

REVIEW BOARD FOR GOVERNMENT CONTRACTS

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SECTION I — INTRODUCTION

1. In our report on the fourth general review[1] of the profit formula for non-competitive Government contracts we recommended a target rate of return in the profit formula of 11 per cent on capital employed, expressed on a semi-CCA accounting basis[2]. We also recommended that the operation of the profit formula should be subject to intermediate review at the end of the first and second year of each succeeding three-year period. These regular intermediate reviews would normally be limited to examination of the target rate of return including the latest information on the profitability of the reference group, on interest rates and on the rate of inflation, and of the assumptions which have to be made regarding the average CP/CE ratio and the proportions of risk and non-risk contracts.

2. It was agreed that this first annual review should include a special review of capital employed.

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[1] The report dated 25 January 1984 on the fourth general review of the profit formula for non-competitive Government contracts was published by Her Majesty's Stationery Office (ISBN 0 11 630453 7). The constitution and functions of the Review Board are set out in that Report.

[2] The semi-CCA basis utilises the historic figures for profit and capital employed as adjusted by inclusion of current cost-based depreciation and fixed asset values (see report of the fourth general review, paragraphs 66 to 68).

SECTION II — SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

The Profit Formula

3. For the period until the next annual review we recommend that:—
   (a) The target rate of return in the profit formula should be 13 per cent on capital employed, on a semi-CCA accounting basis (paragraph 18).
   (b) The assumed proportion of risk to non-risk work should remain at 1.75 to 1 (paragraph 21).
   (c) The average CP/CE ratio should be taken at 2.35/1 on a semi-CCA basis (paragraph 23).
   (d) The profit formula on a semi-CCA basis should thus be established as:—

Risk work —	7.1 per cent on capital plus 3.02 per cent on cost; on the basis of the assumed average CP/CE ratio of 2.35/1, this produces a return on capital employed of 14.2 per cent (paragraph 25).
Non-risk work —	5.45 per cent on capital plus 2.32 per cent on cost; on the basis of the assumed average CP/CE ratio of 2.35/1, this produces a return on capital employed of 10.9 per cent (paragraph 25).

   (e) Contractors whose CP/CE ratio (on a semi-CCA basis) exceeds 4.7/1 should receive fixed percentage rates of profit on cost of 4.53 per cent for risk work and 3.48 per cent for non-risk work. The profit rate for a contractor whose CP/CE ratio (on a semi-CCA basis) is less than 1.2/1 should be subject to special negotiation (paragraph 27).
   (f) At Appendix A, Annex II is set out an equivalent formula on an historic cost basis (paragraph 26).

Study of Capital Employed

4. From our special review of the capital requirements of non-competitive Government work we conclude that:—
   (a) The Government's contentions that Government work generally requires less capital than non-Government work and that the target rate of return needs corresponding adjustment are not sufficiently supported by the statistical data presently available from within the Ministry of Defence ("the MOD"). (Paragraph 39).
   (b) Our examination of the capital requirements of a number of large contractors did not indicate a consistent divergence between the capital requirements of Government and non-Government work. It did, however, show some significant divergences in individual cases, arising almost entirely from a small number of large and exceptional projects (paragraphs 40 to 45).
   (c) The divergences resulting from such projects should in our view be addressed by the negotiation of more relevant units for the calculation of CP/CE ratios rather than by way of an adjustment to the target rate of return in the profit formula (paragraphs 46 and 47).

(d) A transitional adjustment needs to be made to the weighted average CP/CE ratio assumed in the profit formula, to avoid distortion of the average by the exceptional projects referred to in sub-paragraph *(b)* above. Taking this into account together with the latest available statistical information we recommend that the weighted average historic cost CP/CE ratio should be taken to be 3.25/1, equivalent to 2.35/1 on a semi-CCA basis (paragraph 49).

(e) All contractors affected by the profit formula should in our opinion be made equally aware of the Government's payment procedures (paragraph 36).

Implementation of our Recommendations

5. The effective date for implementation of the changes in the profit formula recommended in this report is a matter for agreement between the Government and the Confederation of British Industry. The Board's recommendation is that the effective date should be 1 April 1985, being one year after the revision of the profit formula following the recommendations of the fourth general review.

6. In accordance with paragraph 14 of the Profit Formula Agreement, the revised arrangements would then apply to:—

(a) risk contracts where no price arrangement has been agreed by the effective date, and

(b) non-risk work carried out after that date for which no arrangement for profit has been agreed by that date.

SECTION III — REVIEW OF THE TARGET RATE OF RETURN

Reference Group

7. In this first annual review of the target rate of return we have followed the approach and methodology set out in our 1984 Report[1], substituting the latest available information where appropriate.

8. In the 1984 Report, the Board concluded[2] that the most relevant source of information then available comprised current cost accounts published by companies. For the current review, the Bank of England[3] have again prepared summaries of companies' current cost accounts to our specification from original analyses by Datastream International Limited. These summaries include all those U.K. listed companies, together with the largest unlisted companies, which have published accounts on a CCA basis for 1983[4]. All sectors of industry and commerce have been included except for:— the banking, insurance, investment trust, mining, oil, rubber and tea sectors; companies controlled by overseas parent companies; and those controlled by the U.K. Government.

9. The 1983 reference group comprises 463 companies with a total capital employed of some £75 billion. The 1982 reference group comprised 930 companies with a total capital employed of approximately £100 billion. Despite the fewer companies included, the Board is satisfied that the group is sufficiently large and broadly based to provide a reference point, albeit with some adjustment as described in paragraph 10 below.

Profitability

10. The weighted average real rates of return on capital employed[5] of the reference groups in 1982 and 1983 were as follows:—

Reference Group Returns on Capital Employed
(CCA Basis)

1982	7.9 per cent	(930 companies)
1983	10.3 per cent	(463 companies)

In our 1984 Report we noted that the information available suggested that real rates of return on capital in 1983 would be some 15 per cent to 20 per cent above the 1982 level. At 10.3 per cent the return of the 1983 reference group is apparently 30 per cent above that of 1982. These figures, however, are not directly comparable because of the change in the reference group. We have observed that the rate of return on capital of the reference group, calculated on modified historic cost accounting principles[6], is somewhat higher in 1983 than the rate of return in that year of the larger group of companies which we used as the reference group for 1982. This leads us to conclude that focussing on a narrower CCA reference group for 1983 may have somewhat distorted the average rate of return. Had we now been able to obtain current cost accounts for the wider 1982 reference group, we believe that their return in 1983 would have been somewhat lower than 10.3 per cent — and approximately 9½ per cent.

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[1] Report of the fourth general review, section V.

[2] Report of the fourth general review, paragraph 55.

[3] Our thanks are due to the Bank of England for their assistance.

[4] In this context 1983 refers to companies' financial years ending between April 1983 and March 1984.

[5] Current cost operating profit (before interest, gearing adjustment and taxation) as a percentage of average CCA capital employed.

11. In 1984 the Board concluded that, whilst it should not attempt to forecast future levels of profitability, it should base its recommendations on the latest evidence of profitability achieved up to the date of each review.
The latest information available to us from Government and other sources suggests that the real rate of return on capital in 1984 will be shown to have been some 15 per cent to 20 per cent above the 1983 level. This would give an increase of some 1½ to 2 percentage points, to a 1984 CCA rate of return of between 11 per cent and 11½ per cent.

Allowance for Distinctive Features of Non-competitive Contracts

12. In the 1984 Report the Board concluded that the risks entailed in non-competitive Government work are, in general, slightly less than those to which most U.K. companies are exposed, and that this matter should be recognised by a small reduction in arriving at the target rate of return[7]. The contractors have contended that such a reduction is less justified now than may previously have been the case. Nevertheless we propose for the purpose of this annual review to make the same allowance as before, so reducing the target CCA rate of return to between 10½ per cent and 11 per cent. This matter will be reassessed in the next general review.

13. To achieve this CCA target rate from a new formula, adjustment is required to include an allowance for the two CCA cost adjustments for working capital, namely the Cost of Sales Adjustment and the Monetary Working Capital Adjustment ("COSA" and "MWCA").
In considering the required average allowance for COSA and MWCA, the following two principal factors are relevant:—

(a) The asset structure of Government contractors:
at our last review, an analysis of the capital employed by major Government contractors indicated that working capital for the purpose of the COSA and MWCA calculation represented on average approximately 45 per cent of total capital employed on a semi-CCA basis. We have reassessed this percentage, taking into account the information gathered in our latest review of capital employed, and have concluded that the 45 per cent factor should continue to be used.

(b) The rate of inflation:
we have adopted a rate of 5 per cent.

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[6] Historic cost accounting as modified to include revaluations.

[7] Report of the fourth general review, paragraph 62.

14. The current adjustment for these two factors thus remains at the 1984 increment of 2.25 percentage points[8]. Adding this to the rate of return of between 10½ per cent and 11 per cent in paragraph 12 produces a semi-CCA target rate of return of between 12¾ per cent and 13¼ per cent, say 13 per cent.

15. Another way of considering the appropriate level of the allowance for COSA and MWCA is to express the average rates of return of the reference group in 1982 and 1983 on a semi-CCA basis. The relevant rates are as follows:—

Reference Group Returns on Capital Employed
(Semi-CCA Basis)

1982	9.9 per cent
1983	12.0 per cent

Adjusting the 1983 semi-CCA rate of 12 per cent for the apparent slight distortion in the 1983 reference group profit (paragraph 10), for the trend of profitability in 1984 (paragraph 11), and for the risk differential (paragraph 12), the semi-CCA target rate of return comes to approximately the 13 per cent arrived at in paragraph 14.

Real Net Return on Equity

16. In previous reviews we have converted the target rate of return into a real net return on equity to check whether it satisfied the objective of giving a return which is fair to both parties, consistent with the maintenance of appropriate long-term security of U.K. supply of defence equipment.

17. For this calculation we have assumed a rate of inflation of 5 per cent, an overall interest rate of 11 per cent on borrowings and an effective tax rate of 40 per cent, reflecting a perceived typical increase in contractors' tax charges over the past year. Necessarily, these assumptions and estimates are somewhat broad-brush. However, on this basis we calculate that a profit formula target rate of 13 per cent on a semi-CCA basis would yield the average Government contractor a real net return on equity of 5½ per cent. For those companies which have a lower effective tax rate of, say, 30 per cent, the real net return on equity would be 7 per cent. The Board considers that a real net return on equity of these levels in the coming year would meet the objective set out in paragraph 16.

Recommendation

18. Our recommendation is that the target rate of return in the profit formula should be 13 per cent on capital employed, expressed on a semi-CCA basis. This return is, we calculate, equivalent to an historic cost based target rate of 18 per cent.

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[8] 5 per cent of 45 per cent equals 2.25 per cent.

SECTION IV — THE STRUCTURE OF THE PROFIT FORMULA

Risk and Non-risk Profit Rates

19. The profit formula is based upon the principle that risk contracts should have a higher profit rate than non-risk contracts and the average of the two rates, weighted by the total value of contracts of each type, should equal the overall target rate.
For the purpose of an annual review we think it necessary to consider only whether the assumed proportions of risk and non-risk work should be changed.

20. The information presently available to us from MOD statistics is that the values of contracts (including amendments) placed in the years 1980 to 1984 were as follows:—

Non-competitive Government Contracts Placed

	Year to 31 March				
	1980	*1981*	*1982*	*1983*	*1984*
	£m	£m	£m	£m	£m
Priced according to the formula:					
(a) Risk contracts	2,648	1,583	1,888	2,922	3,471
(b) Non-risk contracts	1,400	1,053	1,014	1,404	1,816
	4,048	2,636	2,902	4,326	5,287
Priced outside the formula	956	563	639	1,065	1,403
Total non-competitive contracts	5,004	3,199	3,541	5,391	6,690
Proportion of risk to non-risk for contracts priced according to the formula	1.89 to 1	1.50 to 1	1.86 to 1	2.08 to 1	1.91 to 1

21. At previous reviews we have derived the proportions of risk and non-risk contracts from data supplied by MOD on contracts placed[1]. The validity of this data has been questioned by the Joint Review Board Advisory Committee[2] ("the J.R.B.A.C.") who would have expected, based on the experience of major contractors, that the proportions of risk and non-risk work would be approximately equal. We propose to look into this subject further. In the meantime, we recommend that the formula should continue to be structured using the currently-assumed proportion of 1.75 to 1, even though the latest MOD data would indicate a slightly higher figure.

The Average CP/CE Ratio

22. Also to be examined at an intermediate review of the profit formula is the average CP/CE ratio which is used to convert part of the target rate from a

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[1] Report on the fourth general review, paragraph 80.

[2] Comprising representatives of the C.B.I. and those trade associations with particular interest in Government contracts.

capital base to a cost base. Our 1984 Report recommended, on the basis of the latest available data, that the average CP/CE ratio should be taken to be 2/1 on a semi-CCA basis, equivalent to 2.62/1 on an historic cost basis.

23. The latest statistics provided to us by the MOD are as follows:—

Weighted Average CP/CE Ratio

	Historic Cost Basis	*Semi-CCA Basis*
1981/82[3]	2.54/1	
1982/83	2.64/1	
1983/84	3.00/1	2.24/1

The 1983/84 historic cost ratio is based on returns to the MOD by contractors accounting for some 80 per cent of capital employed. The semi-CCA ratio has been estimated by the MOD by adjusting contractors' historic cost figures. Although this data is not complete, we consider that it constitutes the most appropriate basis available for recalculating this component of the profit formula. However, as explained later[4], some adjustment is needed to the 1983/84 ratio to avoid distortion of the average by the impact of certain exceptional projects. We recommend that the average CP/CE ratio should be taken to be 2.35/1 on a semi-CCA basis and 3.25/1 on an historic cost basis.

24. Other elements of the formula, including the weighting of cost and capital and the differential between risk and non-risk rates, were established at the last general review and do not fall to be reviewed.

The Revised Profit Formula

(a) The basic formula

25. We recommend that the profit formula expressed on a semi-CCA basis be as follows:—

(i) *Risk work*

7.1 per cent on capital employed, plus 3.02 per cent on cost; on the basis of the assumed average CP/CE ratio of 2.35/1, this produces a return on capital employed of 14.2 per cent.

(ii) *Non-risk work*

5.45 per cent on capital employed, plus 2.32 per cent on cost; on the basis of the assumed average CP/CE ratio of 2.35/1, this produces a return on capital employed of 10.9 per cent.

On the basis of the assumed proportions of risk and non-risk work of 1.75 to 1 (paragraph 21 above), the weighted average of the return of 14.2 per cent on risk work and 10.9 per cent on non-risk work is 13 per cent, corresponding with the recommended overall target rate of return.

26. The working and structure of the present profit formula and of the recommended revision are illustrated in Annexes I and II to Appendix A.

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[3] The basis period for the MOD's CP/CE ratio statistics has been changed from a calendar year to a fiscal year. The 1981 ratio was 2.62/1.

[4] See paragraph 49.

Annex II also shows the equivalent formula on an historic cost basis for those companies which have not made the transition to the semi-CCA basis of pricing. This is based on the 18 per cent rate of return referred to in paragraph 18 above. Annex III shows the profit rates which would be obtainable under the proposed new formula for various CP/CE ratios.

(b) Special provisions

27. In the case of contractors with unusually high or low CP/CE ratios we recommend the following:—

- *(a)* A contractor whose CP/CE ratio on a semi-CCA basis exceeds 4.7/1 should receive fixed percentage rates of profit on cost of 4.53 per cent for risk work and 3.48 per cent for non-risk work.
- *(b)* In the event of a contractor having a CP/CE ratio on a semi-CCA basis of less than 1.2/1, the profit rate should be subject to special negotiation.

This updates the recommendations of the fourth general review to reflect our present proposals with regard to the assumed average CP/CE ratio and the target rate of return.

SECTION V — STUDY OF CAPITAL EMPLOYED

Background

28. In our report on the fourth general review we referred to the difficulties of calculating the capital employed on Government contracts.[1] In the course of that review the Government put it to the Board that contractors' capital requirements for non-competitive Government work were on average below those for non-Government work and that there should be a compensatory reduction in the target rate of return for all contractors.
The Board recommended that it should seek additional evidence on the matter and invite further representations from the Government and the J.R.B.A.C. This view was accepted by both sides.

Scope of the Board's Enquiries

29. After consultation with the Government and the J.R.B.A.C., we divided our enquiries into two parts. The first part concerned the statistical information available to the MOD. We sought evidence from the MOD as to the capital requirements of contractors engaged in non-competitive contracts, including information relating to the MOD's payment procedures.

30. The second part of the review centred upon the accounts of contractors. In consultation with both sides we selected eight companies engaged in non-competitive Government work. The contractors which we investigated ranged from the medium-sized to the very large and included some for whom the calculation of capital employed might have been expected to cause particular difficulties. Two of the eight companies are divided, for both management and pricing purposes, into two separate divisions; our group therefore contained ten separate units for which CP/CE ratios are calculated, and throughout this report we refer to the group as comprising ten contractors.

31. The ten contractors all undertake a significant amount of non-competitive Government work. In aggregate we estimate that they account for over half of the MOD's total expenditure on non-competitive Government work.

32. We should like to express our gratitude to both the MOD and the contractors for their co-operation in this review. In particular, contractors have undertaken a considerable amount of laborious accounting analysis in order to provide us with the information which we requested concerning the respective capital requirements of their Government and other work.

The MOD

33. The amount of capital required for any contract will vary depending, inter alia, on the pattern of payment. The MOD's procedures require contract officers

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[1] The text of our discussion in the 1984 report is set out in Appendix B to this report.

to use their discretion to determine payment arrangements which are appropriate to the circumstances of each contract; the following are the most common:

(a) **Payment only on delivery**

This form of payment is normally used only where a final price has been agreed and is usually restricted to low value contracts or contracts for series production of items with short production lead times.

(b) **Provisional prices**

Where the contractor has submitted a quotation but no final price has been agreed, a provisional price will be set at a level which is lower than MOD's estimate of the final price. Provisional prices are paid on delivery. The balance is not paid until the final price is agreed.

(c) **Stage payments**

These are payments made in predetermined instalments of the contract price (or provisional price) at predetermined stages of the work under a risk contract. Stage payments are usually confined to large contracts. A particular form of stage payment is the 'plan de charge' payment. This is used rarely, and only for exceptionally large contracts including in particular international collaborative projects. Payments under a 'plan de charge' scheme are related to a profile of expenditure agreed in advance which is in turn based on a work plan.

(d) **Progress payments**

These payments are related to a contractor's actual expenditure. They usually apply to cost-plus contracts but may in certain circumstances also be applied to risk work. Progress payments may cover up to 100 per cent of certified expenditure, subject to an overall retention, usually 5 to 10 per cent of the limit of liability or of the contract price. This retention generally becomes effective only towards the end of the contract. Progress payments are normally granted for contracts above a certain value and duration although MOD will sometimes make progress payments where a contractor has a large number of small contracts.

Interim payments of profit may be available for large value contracts with progress payment terms.

34. Several years ago the MOD gave some guidance on payment terms to certain trade associations who are assumed to advise those contractors who are in their membership. However, the MOD offer no direct guidance to contractors regarding the payment terms which are available on a Government contract. The general rule is that it is for contractors to seek interim payments rather than for the MOD to volunteer them. Whilst the absence of any public statement by the MOD as to their payment procedures may not matter to those contractors who deal with the MOD sufficiently frequently to be aware of these procedures, other contractors less aware of the terms that could be negotiated may be placed at a disadvantage.

35. There are also other ways in which some contractors would appear to be more favourably treated than others. For example:—

the MOD's procedures prescribe more generous progress payments for large contracts than for small contracts;

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the stage payment and 'plan de charge' arrangements, which provide an opportunity for the contractor to obtain a cash flow benefit, are confined to the larger contracts;

interim payments of profit on cost-plus contracts are available for larger contracts;

it has been the MOD's practice on occasion to accelerate payments to some contractors shortly before the end of the Government's financial year.

36. We recommend that the MOD should take steps to ensure that all contractors affected by the profit formula are made equally aware of the Government's payment procedures. This guidance could take the form of an addition to the series of Defcon guides which is currently available.

37. The Government's evidence for our fourth general review contained estimates of the average period between the contractor incurring expenditure and receiving payment, based on the advice of the MOD's experienced senior contracts staff. This led the MOD to contend that Government contracts required on average less capital than non-Government contracts and that the target rate of return in the profit formula needed corresponding adjustment.

38. The MOD do not at present maintain a comprehensive data bank regarding the financial arrangements for the very large number of contracts which they place; nor do the MOD have a statistical basis for estimating contractors' capital requirements, in particular the investment in work-in-progress. During our current review we examined some 120 contract files at the MOD's payment branch in Liverpool and enquired as to the factual information available. Whilst we acknowledge that the number of contracts examined was very small in relation to the total number of MOD contracts, the range and variety of treatment amongst those examined was extremely wide.

39. Having examined the evidence put forward by the MOD, the Board's view is that the MOD's contentions regarding the relative capital requirements of Government and non-Government work and the consequent need for a reduction in the target rate of return are not sufficiently supported by the statistical data presently available from within the MOD.

Contractors

40. Our study of contractors' accounts has, however, identified a few important cases in which the present method of assessing capital employed has not produced acceptable results.

41. We asked each of the ten contractors in our group to provide, on a confidential basis, an analysis of their cost of production and capital employed between non-competitive Government contracts and other work for the latest year for which a CP/CE ratio had been agreed. Generally cost of production is identifiable to contracts but capital employed is not, which is why the practical device of a CP/CE ratio came to be adopted for pricing purposes. Within capital employed, some sizeable elements can be identified to individual contracts — usually work-in-progress and debtors — whilst for other elements such as fixed assets and general stocks an apportionment must be made, which inevitably involves a degree of estimation and approximation. We discussed the methods of

analysis with each contractor and agreed the approach to be adopted, having regard to the nature of the business and the accounting information available. At our request, some contractors also assessed separately the capital requirements of certain major projects which appeared to have a significant impact on the analysis.

42. Arising from the foregoing analysis, we were able to compare the contractor's CP/CE ratio as agreed for pricing purposes ('the agreed CP/CE ratio') with a calculated actual CP/CE ratio for his non-competitive Government work alone. The results of this comparison may be summarised as follows:—

(a) For four of the ten contractors, the capital (on an historic cost basis) derived from the agreed CP/CE ratio was within 5 per cent of the capital actually measured; and for a fifth contractor the difference was between 5 per cent and 10 per cent. For two of these five cases the agreed CP/CE ratio overstated capital employed; for the other three the agreed CP/CE ratio understated capital employed.

(b) For the other five contractors, the divergence, again measured in terms of capital employed, was greater than 30 per cent and indeed in two cases very substantially so. In four of these five cases the agreed CP/CE ratio overstated the amount of capital employed; in the fifth case the agreed CP/CE ratio understated the amount of capital employed.

(c) Taking the ten contractors together, the weighted average of the agreed CP/CE ratios overstated the actual amount of capital employed by 12 per cent.

43. The J.R.B.A.C. contended that the year on which our investigation had focussed was in some respects an unusual year and that the results of the review may have been invalidated by subsequent changes in the MOD's contracts practices. However, the fact that for five of the ten contractors in the group we found wide divergences between the agreed CP/CE ratio and the actual CP/CE ratio provides in our view grounds for seeking improvement in the present method of assessment of capital employed.

44. On the other hand, the evidence which we have seen leads us to believe that there is no consistent divergence between the capital requirements of Government and non-Government work. This conclusion is based partly on the very wide spread of divergences in our group and partly on the fact that the average 12 per cent overstatement for the ten contractors could be explained by the impact of a small number of very large projects, both Government and non-Government, each of which was worth hundreds of millions of pounds and displayed exceptional characteristics as regards capital requirements. These characteristics are summarised in the following paragraph. If these projects are excluded from the CP/CE ratio calculation for the ten contractors, the gap between capital derived from the agreed and from the actual CP/CE ratios falls from an average of 12 per cent to an average of 1 per cent, which in this context we do not consider a significant figure.

45. The projects which gave rise to the divergences referred to above included the following:—

(a) certain international collaborative projects which involved the placing of non-competitive Government contracts on significantly

advantageous payment terms, thus reducing the capital employed on Government work below that employed on the non-Government work carried out within the same CP/CE ratio unit;

(b) certain non-Government projects with unusually large capital requirements; these increased the capital employed on non-Government work above that employed on the Government work of the CP/CE ratio unit.

Conclusions

46. In the course of the fourth general review, the Government argued that there should be a reduction in the target rate of return in the profit formula to compensate for what they contended was the general tendency of CP/CE ratios to over-estimate contractors' capital. On the basis of the evidence we have seen we do not believe that this course would be fair or sensible. A reduction in the target rate of return would apply to all contractors alike, whereas we have not seen evidence that there is a consistent tendency for capital to be over-measured. Consequently an across-the-board reduction in the target rate of return affecting all contractors, numbering several thousand altogether, would constitute a serious inequity, particularly in the light of the features described in the previous paragraph. Moreover a general reduction in profit rates by reference to the overall average divergence would do little to correct the substantial overstatement of capital that exists in the case of certain of the contractors whose accounts we examined.

47. It is for the Government to consider whether in the overall context exceptional projects of the types described in paragraph 45 require special treatment either as regards the calculation of CP/CE ratios or in other respects. In our view the problem of capital measurement raised by the very few projects of this kind can best be addressed by the negotiation of more relevant units for the calculation of CP/CE ratios. What constitutes the appropriate unit will depend on the circumstances. Whilst in most cases it will be a business division, it may exceptionally be appropriate to determine a CP/CE ratio either for an individual Government project or for a contractor's Government work as a whole. Each of these latter alternatives could pose practical difficulties, but may in some circumstances provide the only means of obtaining a realistic measurement of the capital employed on Government work, free from the distortions which may be caused by exceptional projects.

48. We first recommended in our 1974 Report that the MOD should seek to negotiate CP/CE ratios for more relevant units of contractors' businesses and this recommendation has been repeated in subsequent reports. Until recently little had been achieved but we were pleased to learn from both the MOD and contractors that real progress is now being made and that several major contractors have proposed a significant number of additional units. We are confident that further progress could be achieved, given resolution and a sense of urgency on both sides. In the meantime the Board remains willing to examine a test case or cases to establish general principles for the definition of relevant units.

49. Until the steps referred to in paragraph 47 have been implemented, a transitional adjustment should in our view be made to the average CP/CE ratio

assumed in the profit formula so as to eliminate the effect of the distortions in capital measurement which we have identified. We accordingly recommend an increase in the assumed average CP/CE ratio to 2.35/1 on a semi-CCA basis; the equivalent historic cost ratio is 3.25/1 (see paragraph 23). The Board will keep under review whether, and to what extent, such an adjustment will be needed in future years.

JOHN GRENSIDE
RUSSELL BARRATT
KENNETH BERRILL
ROY SISSON
ERIC SWAINSON

11th March, 1985.

APPENDIX A

THE PROFIT FORMULA — ILLUSTRATIONS

These Annexes illustrate the workings and structure of the profit formula for non-competitive Government contracts:—

Annex I	Illustration of the Application of the Recommended Profit Formula to a Risk Contract.
Annex II	The Structure of the Profit Formula Semi-CCA basis:— *(a)* Present Formula *(b)* Recommended Formula Historic cost basis (transitional):— *(c)* Present Formula *(d)* Recommended Formula
Annex III	Profit Rates for Contractors with various CP/CE Ratios.

APPENDIX A: ANNEX I

ILLUSTRATION OF THE APPLICATION OF THE RECOMMENDED PROFIT FORMULA TO A RISK CONTRACT

(Semi-CCA Basis)

Estimated cost of production	£100,000
Calculation of contractor's CP/CE ratio:	
Total annual cost of production	£12,500,000
Total capital employed	£5,000,000
CP/CE ratio is therefore	2.5/1
Profit formula for risk work	7.1% on capital and 3.02% on cost
Adopting the CP/CE ratio 2.5/1	7.1% on capital $=\frac{7.1}{2.5}$ =2.84% on cost
Profit allowance on cost of production is therefore	2.84% plus 3.02% = 5.86%
Contract price would thus be	£100,000 (estimated cost) plus 5.86% profit thereon = £105,860.

APPENDIX A: ANNEX II

THE STRUCTURE OF THE PROFIT FORMULA

		Semi-CCA Basis		*Historic Cost Basis (transitional)*	
		Present Formula (a)	*Recommended Formula (b)*	*Present Formula (c)*	*Recommended Formula (d)*
Risk contracts					
Capital-based profit element	A	6.0%	7.10%	8.5%	9.82%
Cost-based profit element	B	3.0%	3.02%	3.2%	3.02%
Average CP/CE ratio	C	2/1	2.35/1	2.62/1	3.25/1
Cost-based profit element, expressed as profit on capital employed (B × C)	D	6.0%	7.10%	8.4%	9.82%
Total profit on capital employed (A + D)	E	12.0%	14.20%	16.9%	19.64%
Total profit on cost of production (E ÷ C)	F	6.0%	6.04%	6.4%	6.04%
Non-risk contracts					
Capital-based profit element	G	4.6%	5.45%	6.5%	7.56%
Cost-based profit element	H	2.3%	2.32%	2.5%	2.33%
Average CP/CE ratio	I	2/1	2.35/1	2.62/1	3.25/1
Cost-based profit element, expressed as profit on capital employed (H × I)	J	4.6%	5.45%	6.6%	7.57%
Total profit on capital employed (G + J)	K	9.2%	10.90%	13.1%	15.13%
Total profit on cost of production (K ÷ I)	L	4.6%	4.64%	5.0%	4.66%
All contracts					
Proportion of risk to non-risk contracts	M	1.75 to 1	1.75 to 1	1.75 to 1	1.75 to 1
Weighted average profit on capital employed	N	11.0%	13.00%	15.5%	18.00%
Weighted average profit on cost of production	O	5.5%	5.53%	5.9%	5.54%
Statistics					
Weighting on capital —					
Risk contracts (A ÷ E)	P	50.0%	50.00%	50.3%	50.00%
Non-risk contracts (G ÷ K)	Q	50.0%	50.00%	49.6%	49.97%
Differential between risk and non-risk profits					
Profit on capital employed (E – K)	R	2.8%	3.30%	3.8%	4.51%
As percentage of non-risk rate (R ÷ K)	S	30.4%	30.28%	29.0%	29.81%

APPENDIX A: ANNEX III

PROFIT RATES FOR CONTRACTORS WITH VARIOUS CP/CE RATIOS

(based on the recommended profit formula, on a semi-CCA basis)

	CP/CE ratio					
	1.2/1 %	2/1 %	2.35/1 %	3/1 %	4/1 %	4.7/1 %
Risk contracts						
Total profit as percentage of:						
capital employed . . .	10.72	13.14	14.20	16.16	19.18	21.29
cost of production . .	8.94	6.57	6.04	5.39	4.80	4.53
Non-risk contracts						
Total profit as percentage of:						
capital employed . . .	8.23	10.09	10.90	12.41	14.73	16.35
cost of production . .	6.86	5.05	4.64	4.14	3.68	3.48
All contracts (Assuming mix of 1.75 to 1)						
Total profit as percentage of:						
capital employed . . .	9.81	12.03	13.00	14.80	17.56	19.49
cost of production . .	8.18	6.02	5.53	4.93	4.39	4.15

(Figures have been rounded to two decimal places).

APPENDIX B

EXTRACT FROM THE 1984 REPORT

THE MEASUREMENT OF CAPITAL EMPLOYED

"34. The profit formula target rate of return is expressed as a return on capital employed. It is, however, generally not possible to identify to a particular Government contract all the elements of capital employed. There are also very great practical difficulties in separating the capital employed in a contractor's Government business generally from that employed in the rest of his operations. The approach in practice has been to derive the capital employed for each individual Government contract from the cost of production of that contract using the CP/CE ratio for the contractor's business as a whole (comprising both Government and non-Government work) or the CP/CE ratio for such a smaller business unit as may be agreed between the contractor and the MOD to be the relevant unit for this purpose.

35. Whether this practical approach produces a rate of return on Government work in line with the target rate of return depends on whether the capital employed on Government contracts bears the same relation to the cost of production as it does on non-Government work. In its 1969/70 Report, the Public Accounts Committee questioned in particular whether the working capital requirements of Government contracts might be lower than those of comparable non-Government contracts. If this was so, and if there were no offsetting factors elsewhere in the capital computation, then the return on capital earned on Government contracts could well be greater than planned. Following these comments, the Board undertook a detailed study and concluded in its 1974 Report that there was no evidence that the capital requirements of Government contracts were consistently lower than for non-Government work. The Board did, however, in the 1974 Report express concern as to whether the practice of calculating a CP/CE ratio for the totality of a business was the most satisfactory way of applying the profit formula to an individual contract. Whilst recognising that only rarely will it be practicable to calculate the ratio for individual contracts, the Board recommended that CP/CE ratios should be calculated for smaller and more relevant units within a contractor's overall operation. These recommendations were in principle accepted by the Government and the C.B.I.

36. It has to be said that since 1974 progress towards smaller and more relevant units has been slow. The Government agree that it will very seldom be possible to allocate capital on a contract by contract basis but believe that, were it not for resistance by some contractors, it should have been possible to progress considerably further along the route towards smaller and more relevant units. The J.R.B.A.C. argue that this would cause additional accountancy work out of proportion to the value of the results achieved. The Board agrees with the Government that this process should indeed go further. The MOD should, where they believe it appropriate, insist on contractors' co-operation and contractors should give it.

37. Disagreements may well arise between contractors and the MOD as to precisely what constitutes the relevant unit for the purpose of arriving at the CP/CE ratio. The Board would be ready to rule on a test case or cases which it considered suitable for the purpose of establishing general principles. The establishment of guidelines ought to facilitate the resolution of other similar disputes.

38. A substantial move towards smaller and more relevant units for calculating CP/CE ratios would not entirely overcome the problem of achieving a target rate of return if the capital requirements of Government work were markedly different from those of the non-Government work which that unit also undertakes. At a late stage in the present review the Government revived the 1969/70 misgivings of the Public Accounts Committee and put it to the Board that there were grounds for believing that the working capital requirements are lower for Government than for non-Government work. They suggested that there should be a compensatory reduction in the target rate of return. The Government's interpretation of the position was not supported by direct accounting evidence of the capital requirements of the two classes of work, and it was vigorously contested by the J.R.B.A.C. who produced further data and arguments to the contrary.

39. In the view of the Board the evidence so far presented is not such as to justify an adjustment to the profit formula or the target rate of return. In the course of the intermediate review envisaged for 1984 the Board proposes to seek additional evidence and invite further representations from the Government and the J.R.B.A.C. on this issue."

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